

**Cyclone Microsystems**

**PCIe Chassis Monitor**

**User's Manual**

**P/N CM026**

Revision 0.1

16-May-12

## **Overview**

The Cyclone PCIe Chassis Monitor system is comprised of 2 parts: an intelligent monitor board and a set of I2C-based monitor devices which are installed as part of the PCIe expansion board hardware design. Using the I2C devices, the monitor board can perform the following:

- Monitor the temperature from 5 different locations on the expansion board
- Monitor the fan speed of the 4 system fans
- Monitor the state of the +12V, +5V, +3.3V, +2.5V, and +1V
- Monitor the state of the PCIe cable present signal
- Detect the PCB revision of the expansion board
- Monitor the state of the PWR\_OK signal from the ATX power supply interface

Data about the monitored system is available in 2 different, mutually exclusive, formats. When configured in HTTP mode, the monitor board runs as a web server, making the data available through a CGI enabled web page. When configured in SNMP mode, the monitor board's Management Information Base (MIB) can be queried from an SNMP management station and traps about events can be sent to the SNMP management station(s).

Prior to being used to monitor an active system, the software needs to be configured by the user. Items which require configuration are: Operating Mode (HTTP or SNMP), the static IPv4 address of the monitor board, and, for SNMP mode, one or more IPv4 addresses to which SNMP traps are to be sent.

## Configuring for HTTP Operation

The boot time user interface is used to configure the monitor card for HTTP operation. Please see the following dialog. Please note when entering the parameters that the serial number can be found on a sticker on the monitor board should it get accidentally overwritten from its factory setting:

```
*****
**          Cyclone PCIe Chassis Sensor Configuration          **
** Firmware Version                      v 1.00              **
** Built On                            May  9 2012 at 11:34:33   **
*****

SERIAL NUMBER                : 41
OPERATING MODE               : HTTP
NETWORK INTERFACE PARAMETERS:
  LAN0 IP address            0.0.0.0
  LAN0 subnet mask           0.0.0.0
```

To change any of this, press any key within 5 seconds.

The user interrupts the autoboot sequence by hitting <Enter> and then hits “M” to modify the settings

```
(M)odify any of this or (C)ontinue? [M] m
```

For each of the following questions, you can press <Return> to select the value shown in braces, or you can enter a new value.

```
Serial number? [41]
```

```
Operating mode? [1:HTTP] (1=HTTP, 2=SNMP) 1
```

```
LAN0 IP address? [0.0.0.0] 10.0.126.2
```

```
LAN0 subnet mask? [0.0.0.0] 255.255.0.0
```

```
*****
```

```
**          Cyclone PCIe Chassis Sensor Configuration          **
** Firmware Version                      v 1.00                **
** Built On                            May  9 2012 at 11:34:33    **
*****
```

```
SERIAL NUMBER           : 41
OPERATING MODE          : HTTP
NETWORK INTERFACE PARAMETERS:
  LAN0 IP address       10.0.126.2
  LAN0 subnet mask      255.255.0.0
```

(M)odify any of this or (C)ontinue? [M] c

```
Storing new configuration parameters ... OK
Sensor serial_number = 41
MAC address = [ 0x00:0x80:0x4d:0x1a:0x00:0x29 ]
Set master mode ...
I2C0 bus speed = 357142
I2C0 bus speed exceeds maximum. Reducing bus speed.
I2C0 reduced bus speed = 89285
Initializing AMC6821 Unit 0...
Starting PCIe Expansion Sensor package in HTTP mode...
..
```

## **HTTP Web Server Overview**

When configured for HTTP mode, the user's web browser may be pointed to the monitor card's previously configured IPv4 address. In the previous configuration example, the IPv4 address would be 10.0.126.2. The following web page will then be displayed. When a sensor reading is within design limits, the color of the reading will be displayed as Green. When a sensor reading is outside of design limits, the color of the reading will be displayed as Red.

## Status Page for System Within Design Limits



### PCIe-428/429 Chassis Monitoring

Temperature Sensor #1 (Near J2) : 25 degrees C

Temperature Sensor #2 (Near J6) : 26 degrees C

Temperature Sensor #3 (Near J12) : 25 degrees C

Temperature Sensor #4 (Near J18) : 25 degrees C

Temperature Sensor NE1619 : 29 degrees C

Fan #1 : 2465 RPM

Fan #2 : 2888 RPM

Fan #3 : 2951 RPM

Fan #4 : 2355 RPM

2.5V Power Rail : 2.500 VDC

3.3V Power Rail : 3.369 VDC

12V Power Rail : 12.000 VDC

5V Power Rail : 5.156 VDC

PLX Core Voltage : 0.996 VDC

ATX PWR\_OK Status : ATX OK

PCIe Cable Present Status : PCIe Cable Present OK

PCIe Expansion PCB Revision : A

Firmware Version String : Firmware version v 1.00, build on May 9 2012 at 11:34:33

## Status Page for System With Fan #2 Outside of Design Limits



### PCIe-428/429 Chassis Monitoring

Temperature Sensor #1 (Near J2) : 25 degrees C  
Temperature Sensor #2 (Near J6) : 26 degrees C  
Temperature Sensor #3 (Near J12) : 25 degrees C  
Temperature Sensor #4 (Near J18) : 25 degrees C  
Temperature Sensor NE1619 : 30 degrees C  
Fan #1 : 2464 RPM

Fan #2 : 763 RPM

Fan #3 : 2936 RPM

Fan #4 : 2349 RPM

2.5V Power Rail : 2.500 VDC

3.3V Power Rail : 3.369 VDC

12V Power Rail : 12.000 VDC

5V Power Rail : 5.156 VDC

PLX Core Voltage : 0.996 VDC

ATX PWR\_OK Status : ATX OK

PCIe Cable Present Status : PCIe Cable Present OK

PCIe Expansion PCB Revision : A

Firmware Version String : Firmware version v 1.00, build on May 9 2012 at 11:34:33

## Configuring for SNMP Operation

The boot time user interface is used to configure the monitor card for SNMP operation. Please see the following dialog. Please note when entering the parameters that the serial number can be found on a sticker on the monitor board should it get accidentally overwritten from its factory setting:

```
*****
**          Cyclone PCIe Chassis Sensor Configuration          **
** Firmware Version                      v 1.00              **
** Built On                            May  9 2012 at 11:34:33   **
*****

SERIAL NUMBER           : 41
OPERATING MODE          : HTTP
NETWORK INTERFACE PARAMETERS:
  LAN0 IP address       0.0.0.0
  LAN0 subnet mask      0.0.0.0
```

To change any of this, press any key within 5 seconds.

The user interrupts the autoboot sequence by hitting <Enter>. Then hits “M” to modify the settings

(M)odify any of this or (C)ontinue? [M] m

For each of the following questions, you can press <Return> to select the value shown in braces, or you can enter a new value.

Serial number? [41]

Operating mode? [1:HTTP] (1=HTTP, 2=SNMP) 2

LAN0 IP address? [0.0.0.0] 10.0.126.2

LAN0 subnet mask? [0.0.0.0] 255.255.0.0

Primary Trap IP address? [0.0.0.0] 10.0.56.4

Do you wish to view/modify the Extra Trap host list? [N] n

```
*****
**          Cyclone PCIe Chassis Sensor Configuration          **
** Firmware Version                               v 1.00      **
** Built On                                   May  9 2012 at 11:34:33  **
*****
```

```
SERIAL NUMBER           : 41
OPERATING MODE          : SNMP
NETWORK INTERFACE PARAMETERS:
  LAN0 IP address       10.0.126.2
  LAN0 subnet mask      255.255.0.0
  Primary Trap IP       10.0.56.4
```

```
*** Extra Trap Host List Invalid ***
```

```
(M)odify any of this or (C)ontinue? [M] c
```

```
Storing new configuration parameters ... OK
Sensor serial_number = 41
MAC address = [ 0x00:0x80:0x4d:0x1a:0x00:0x29 ]
Set master mode ...
I2C0 bus speed = 357142
I2C0 bus speed exceeds maximum. Reducing bus speed.
I2C0 reduced bus speed = 89285
Initializing AMC6821 Unit 0...
Sensor SNMP started, wait...

SNMP task for Cyclone PCIe Expansion Chassis Sensor started.
```



## SNMP Overview

When configured for SNMP mode, an SNMP Manager may be pointed at the monitor card's previously configured IPv4 address. In the previous configuration example, the IPv4 address would be 10.0.126.2. The Cyclone Microsystems Private Enterprise Number is 35296. The following diagram illustrates the SNMP variables that can be queried:

Agent Address	Variable (Oid)	Value
Variable Watches		
v2_10.0.126.2	temp0 (1.3.6.1.4.1.35296.1.1.1.2)	Temperature Sensor #1 (Near J2) : 26 degrees C
v2_10.0.126.2	temp1 (1.3.6.1.4.1.35296.1.1.1.3)	Temperature Sensor #2 (Near J6) : 26 degrees C
v2_10.0.126.2	temp2 (1.3.6.1.4.1.35296.1.1.1.4)	Temperature Sensor #3 (Near J12) : 25 degrees C
v2_10.0.126.2	temp3 (1.3.6.1.4.1.35296.1.1.1.5)	Temperature Sensor #4 (Near J18) : 25 degrees C
v2_10.0.126.2	temp_ne1619 (1.3.6.1.4.1.35296.1....	Temperature Sensor NE1619: 29 degrees C
v2_10.0.126.2	fan0 (1.3.6.1.4.1.35296.1.1.1.7)	Fan #1: 2468 RPM
v2_10.0.126.2	fan1 (1.3.6.1.4.1.35296.1.1.1.8)	Fan #2: 2872 RPM
v2_10.0.126.2	fan2 (1.3.6.1.4.1.35296.1.1.1.9)	Fan #3: 2932 RPM
v2_10.0.126.2	fan3 (1.3.6.1.4.1.35296.1.1.1.10)	Fan #4: 2363 RPM
v2_10.0.126.2	volts_2_5 (1.3.6.1.4.1.35296.1.1.1....	2.5V Power Rail: 2.500 VDC
v2_10.0.126.2	volts_3_3 (1.3.6.1.4.1.35296.1.1.1....	3.3V Power Rail: 3.369 VDC
v2_10.0.126.2	volts_12 (1.3.6.1.4.1.35296.1.1.1.13)	12V Power Rail: 12.000 VDC
v2_10.0.126.2	volts_5 (1.3.6.1.4.1.35296.1.1.1.14)	5V Power Rail: 5.156 VDC
v2_10.0.126.2	volts_plx (1.3.6.1.4.1.35296.1.1.1.15)	PLX Core Voltage: 0.996 VDC
v2_10.0.126.2	atx_status (1.3.6.1.4.1.35296.1.1.1....	ATX PWR_OK Status: ATX OK
v2_10.0.126.2	cable_status (1.3.6.1.4.1.35296.1.1....	PCIe Cable Present Status: PCIe Cable Present OK
v2_10.0.126.2	pcb_revision (1.3.6.1.4.1.35296.1.1....	PCIe Expansion PCB Revision: A
v2_10.0.126.2	firmware_version (1.3.6.1.4.1.35296...	Version : Firmware version v 1.00, build on May 9 2012 at 11:34:33

If the monitor card has been previously configured to generate traps, the SNMP Manager should receive trap messages on a warm Start condition (i.e. when the SNMP software on the monitor cards starts up) and when any of the monitored parameters are outside of design limits. In addition, traps will also be generated whenever a parameter reading, which was previously outside of design limits, returns to the normal range. The monitor card generates both Message Version 1 and Message Version 2 traps. The following diagram illustrates a trap message when the Fan #2 reading has gone outside the normal range:

## Trap Message Summary

### Message Information

Agent: 10.0.126.2:161

Enterprise: 1.3.6.1.4.1.35296

Description:

Generic Trap: 6

Specific Trap: 6

Uptime: 3877

Timestamp: 5/9/2012 2:45:22 PM

Message Version: One

### Variables

OID	OID Type	Value	Description
1.3.6.1.4.1.35296.1.1.2.7.0	OctetString	Fan #2 Out-of-Range	

The following diagram illustrates a trap message when the Fan #2 reading has returned to the normal range:

Trap Message Summary

Message Information

Agent: 10.0.126.2:161

Enterprise: 1.3.6.1.4.1.35296

Description:

Generic Trap: 6

Specific Trap: 6

Uptime: 3696

Timestamp: 5/9/2012 2:45:26 PM

Message Version: One

Variables

OID	OID Type	Value	Description
1.3.6.1.4.1.35296.1.1.2.23.0	OctetString	Fan #2 Normal	

## **Adding Additional Trap Hosts**

In addition to the Primary Trap IP address, the monitor can support up to 5 additional IPv4 addresses to which traps will be sent. Additional trap addresses are entered through the startup configuration dialog. Note that to effectively delete a trap host, set its address to 0.0.0.0. Please see the following example:

...

```
Do you wish to view/modify the Extra Trap host list? [N] y
```

```
Modify contents of the Extra Trap Host List
```

```
Extra Trap Host List Contains 0 Valid Entries
```

```
=====
```

```
(M)odify, (S)ave, or (E)xit? [M] m
```

```
Enter the Trap Host ID to add/modify [1..5]: 1
```

```
Modify Trap Host Entry
```

```
=====
```

```
Host IP address [0.0.0.0] 10.0.58.1
```

```
Extra Trap Host List Contains 1 Valid Entries
```

```
=====
```

```
Host 0: IP address [10.0.58.1]
```

```
(M)odify, (S)ave, or (E)xit? [M] m
```

Enter the Trap Host ID to add/modify [1..5]: 2

Modify Trap Host Entry

=====

Host IP address [0.0.0.0] 10.0.58.2

Extra Trap Host List Contains 2 Valid Entries

=====

Host 0: IP address [10.0.58.1]

Host 1: IP address [10.0.58.2]

(M)odify, (S)ave, or (E)xit? [M] m

Enter the Trap Host ID to add/modify [1..5]: 3

Modify Trap Host Entry

=====

Host IP address [0.0.0.0] 10.0.58.3

Extra Trap Host List Contains 3 Valid Entries

=====

Host 0: IP address [10.0.58.1]

Host 1: IP address [10.0.58.2]

Host 2: IP address [10.0.58.3]

(M)odify, (S)ave, or (E)xit? [M] sExtra Trap host list modified, changes will be saved

\*\*\*\*\*

\*\* Cyclone PCIe Chassis Sensor Configuration \*\*

\*\* Firmware Version v 1.00 \*\*

\*\* Built On May 9 2012 at 16:13:11 \*\*

\*\*\*\*\*

SERIAL NUMBER : 41

OPERATING MODE : SNMP

NETWORK INTERFACE PARAMETERS:

LAN0 IP address 10.0.126.2

LAN0 subnet mask 255.255.0.0

Primary Trap IP 10.0.56.4

Host 0: 10.0.58.1

Host 1: 10.0.58.2

Host 2: 10.0.58.3

(M)odify any of this or (C)ontinue? [M] c

Storing new configuration parameters ... OK

Sensor serial\_number = 41

MAC addres = [ 0x00:0x80:0x4d:0x1a:0x00:0x29 ]

Set master mode ...

I2C0 bus speed = 357142

I2C0 bus speed exceeds maximum. Reducing bus speed.

I2C0 reduced bus speed = 89285

Initializing AMC6821 Unit 0...

Sensor SNMP started, wait...

## **Cyclone Sensor SNMP MIB**

SENSOR-MIB DEFINITIONS ::= BEGIN

DisplayString ::= OCTET STRING

cyclone\_microsystems OBJECT IDENTIFIER ::= { enterprises 35296 }

cyclone\_snmp\_sensor OBJECT IDENTIFIER ::= { cyclone\_microsystems 1 }

sensor1 OBJECT IDENTIFIER ::= { cyclone\_snmp\_sensor 1 }

data OBJECT IDENTIFIER ::= { sensor1 1 }

hello\_string OBJECT-TYPE  
SYNTAX DisplayString  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
"  
"  
::= { data 1 }

temp0 OBJECT-TYPE  
SYNTAX DisplayString  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
"  
"  
::= { data 2 }

temp1 OBJECT-TYPE  
SYNTAX DisplayString  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
"  
"  
::= { data 3 }

temp2 OBJECT-TYPE  
SYNTAX DisplayString  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
"  
"  
::= { data 4 }

temp3 OBJECT-TYPE  
SYNTAX DisplayString  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
"  
"  
::= { data 5 }

temp\_ne1619 OBJECT-TYPE  
SYNTAX DisplayString  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
"  
"



```

        ::= { data 6 }

fan0 OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { data 7 }

fan1 OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { data 8 }

fan2 OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { data 9 }

fan3 OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { data 10 }

volts_2_5 OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { data 11 }

volts_3_3 OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { data 12 }

volts_12 OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { data 13 }

volts_5 OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION

```

```

        ""
        ::= { data 14 }

volts_plx OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
        ::= { data 15 }

atx_status OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
        ::= { data 16 }

cable_status OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
        ::= { data 17 }

pcb_revision OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
        ::= { data 18 }

sysUpTime OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
        ::= { data 19 }

firmware_version OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
        ::= { data 20 }

traps          OBJECT IDENTIFIER ::= { sensor1 2 }

trapmsg1b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
        ::= { traps 1 }

trapmsg2b OBJECT-TYPE
    SYNTAX DisplayString

```

```

        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            ""
        ::= { traps 2 }

trapmsg3b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 3 }

trapmsg4b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 4 }

trapmsg5b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 5 }

trapmsg6b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 6 }

trapmsg7b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 7 }

trapmsg8b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 8 }

trapmsg9b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 9 }

trapmsg10b OBJECT-TYPE

```

```

        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            ""
        ::= { traps 10 }

trapmsg11b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 11 }

trapmsg12b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 12 }

trapmsg13b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 13 }

trapmsg14b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 14 }

trapmsg15b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 15 }

trapmsg16b OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 16 }

trapmsg17g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 17 }

```

```

trapmsg2g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 18 }

trapmsg3g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 19 }

trapmsg4g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 20 }

trapmsg5g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 21 }

trapmsg6g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 22 }

trapmsg7g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 23 }

trapmsg8g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 24 }

trapmsg9g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        ""
    ::= { traps 25 }

```

```

trapmsg10g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { traps 26 }

trapmsg11g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { traps 27 }

trapmsg12g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { traps 28 }

trapmsg13g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { traps 29 }

trapmsg14g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { traps 30 }

trapmsg15g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { traps 31 }

trapmsg16g OBJECT-TYPE
    SYNTAX DisplayString
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        " "
    ::= { traps 32 }

```

END